12/16/16 "Intelligence plus character, that is the true goal of education."-Martin Luther King Jr.

HW: "Review Sheet for Q2T2"
Test 2 on Tuesday 12/20

AIM: How do we write Polynomial Equations??

Warm Up: (Do Now #3 on the handout)

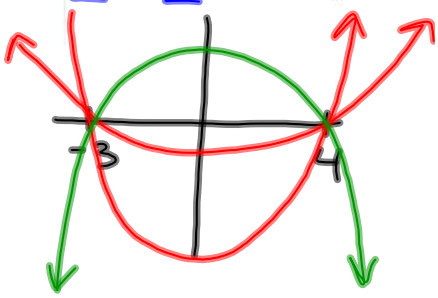
has x^3 or 3 sets of parenthesis

Find an equation for a cubic polynomial that has zeros of -2, 1 and 3.

$$y = (x+2)(x-1)(x-3)$$

has x^2 or 2 sets of parenthesis

1. Determine the equation of a quadratic function whose roots are -3 and 4 and which passes through the point $(2, -50)$



$y = a(x+3)(x-4)$

$-50 = a(2+3)(2-4)$

$-50 = a(5)(-2)$

$-50 = a(-10)$

$\frac{-50}{-10} = \frac{-10a}{-10}$

$a = 5$

$y = 5(x+3)(x-4)$

x^3 or 3 sets of ( )

3. Create the equation of ~~a cubic, in~~ standard form, that has a double zero at -2 and another zero at 4. The cubic has a y-intercept of 16.

$(0, 16)$

$y = a(x+2)(x+2)(x-4)$

$16 = a(0+2)(0+2)(0-4)$

$16 = a(2)(2)(-4)$

$16 = a(-16)$

$\frac{16}{-16} = \frac{-16a}{-16}$

$a = -1$

$y = -1(x+2)(x+2)(x-4)$

$y = -1(x^2+2x+2x+4)(x-4)$

$y = -1(x^2+4x+4)(x-4)$

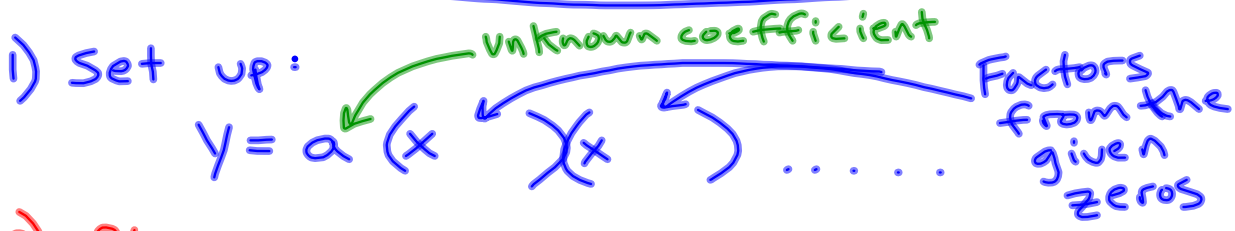
$y = -1(x^3-4x^2+4x^2-16x+4x-16)$

$y = -1(x^3-12x-16)$

$y = -x^3+12x+16$

Steps to writing Polynomial Eqs:

1) Set up:



2) Plug in a known point in for y and x (Dont use a zero)

3) Solve for "a"

4) Write the equation.

3 sets of ( )

7. Find the cubic polynomial whose graph passes through the points $(2,0)$ and $(4,6)$ and is tangent to the x-axis at the origin.

Point

zeros

(bounces)

(Double zero)

$y = a(x-2)(x+0)(x+0)$

$6 = a(4-2)(4+0)(4+0)$

$6 = a(2)(4)(4)$

$\frac{6}{32} = \frac{32a}{32}$ $a = \frac{6}{32} = \frac{3}{16}$

$y = \frac{3}{16}(x-2)(x+0)(x+0)$

$y = \frac{3}{16}(x-2)(x)(x)$

$y = \frac{3}{16}(x-2)(x^2)$

$$y = \frac{3}{16}x^2(x-2)$$